

CLAIMS

[1] A play toy equipped with a barcode reader, which reads a barcode indicated on an article such as a seal, card or book using a barcode reader provided with a barcode sensor, and develops play based on a barcode readout result,

the barcode reader comprising:

a reader body;

a movable member formed with an opening for guiding light beams reflected from the barcode to the barcode sensor and movably held by the reader body so as to be relatively moved with respect to the reader body between a farther forward position and a closer forward position as viewed from the reader body; and

a barcode sensor moving mechanism for moving the barcode sensor within a movable range corresponding to the opening without using electrical power,

wherein the movable member is held by the reader body so as to be relatively moved with respect to the reader body from the farther forward position to the closer forward position while being pressed onto the article, and to be relatively moved with respect to the reader body from the closer forward position to the farther forward position when pressing of the movable member onto the article is released; and

wherein the barcode sensor moving mechanism includes energy storage means which is energized while the movable member is being pressed onto the article, and is arranged so as to move the barcode sensor from one end to the other end of the opening

using the energy released from the energy storage means.

[2] The play toy equipped with a barcode reader according to claim 1, wherein the barcode sensor moving mechanism includes:

a guide member extending parallel to the opening;

a barcode sensor holder slidably mounted on the guide member for holding the barcode sensor; and

a rotation link having one end thereof rotatably mounted on a rotation center axle and the other end thereof slidably connected to the barcode sensor holder,

the rotation link rotating on the rotation center axle, thereby allowing the barcode sensor holder to reciprocate along the guide member.

[3] The play toy equipped with a barcode reader according to claim 1 or 2, wherein the barcode includes a first barcode pattern including information, and a second barcode pattern including a reference barcode row constituted from a plurality of bars which have a constant width dimension and are disposed at constant intervals, and parallel with the first barcode pattern,

wherein each bar of the first barcode pattern is indicated, being aligned with the plurality of bars of the reference barcode row of the second barcode pattern; and

wherein the barcode reader includes first and second barcode sensors for reading the first and second barcode patterns respectively.

[4] The play toy equipped with a barcode reader according to claim 1 or 2, further comprising:

a data processing section for processing data read out by the barcode reader;

a memory for storing data necessary for data processing in the data processing section;

display means for displaying result of data processing by the data processing section; and

data use regulating means for regulating the use of the data stored in the memory,

wherein the data use regulating means includes m key members (m is a positive integer), each provided corresponding to m types of data groups (m is a positive integer) stored in the memory, and a key member determination section having key member insertion sections, into which the m key members are respectively inserted, for determining whether or not the m key members are inserted so as to permit the data groups corresponding to the inserted key members to be used in the data processing section.

[5] A play toy equipped with a barcode reader, which reads a barcode indicated on an article such as a seal, card or book using the barcode reader provided with a barcode sensor, and develops play based on a barcode readout result,

the barcode reader comprising:

a reader body;

a movable member formed with an opening for guiding light

beams reflected from the barcode to the barcode sensor and movably held by the reader body so as to be relatively moved with respect to the reader body between a farther forward position and a closer forward position as viewed from the reader body; and

a barcode sensor moving mechanism for moving the barcode sensor within a movable range corresponding to the opening without using electrical power,

wherein the movable member is held by the reader body so as to be relatively moved with respect to the reader body from the farther forward position to the closer forward position while being pressed onto the article, and to be relatively moved with respect to the reader body from the closer forward position to the farther forward position when pressing of the movable member onto the article is released; and

wherein the barcode sensor moving mechanism includes first and second energy storage means, which are energized while the movable member is being pressed onto the article, and is so constructed as to move the barcode sensor from one end to the other end of the opening using energy released from the first energy storage means, and to move the barcode sensor from the other end to the one end of the opening using energy released from the second energy storage means when pressing of the movable member onto the article is released.

[6] The play toy equipped with a barcode reader according to claim 3, wherein the barcode sensor moving mechanism includes:

an energy storing mechanism for energizing the first energy storage means and the second energy storage means while the movable member is being moved from the farther forward position toward the closer forward position,

a trigger mechanism for releasing the energy from the first energy storage means when the movable member has reached a predetermined position while the movable member is being moved from the farther forward position toward the closer forward position, and

a movement link mechanism for moving the barcode sensor from one end to the other end of the opening using the energy released from the first energy storage means, and from the other end to one end of the opening using the energy released from the second energy storage means when pressing of the movable member onto the article is released.

[7] The play toy equipped with a barcode reader according to claim 6, wherein the barcode sensor and the barcode sensor moving mechanism are received inside the movable member; and

wherein the energy storing mechanism is constructed in such a manner that a part of an energy storing link constituting the energy storing mechanism abuts on a part of the reader body, thereby causing the movable member to stay at the farther forward position when the movable member is not pressed onto the article, and the first energy storage means and the second energy storage means are energized using force applied to the energy storing link when the movable member is relatively moved with respect

to the reader body while being pressed onto the article.

[8] The play toy equipped with a barcode reader according to claim 6, wherein the movement link mechanism includes:

a guide member extending parallel to the opening;

a barcode sensor holder slidably mounted on the guide member for holding the barcode sensor; and

a rotation link having one end thereof rotatably mounted on a rotation center axle, and the other end thereof is slidably connected to the barcode sensor holder,

wherein the movement link mechanism is constructed in such a manner that the rotation link angularly turns on the rotation center axle, thereby allowing the barcode sensor holder to reciprocate along the guide member.

[9] The play toy equipped with a barcode reader according to claim 6, wherein the energy storing mechanism includes:

an energy storing link having a first arm portion and a second arm portion and rotating within a prescribed angular range on the rotation center axle,

a first spring disposed between the rotation link and the energy storing link and having one end thereof fixed to the rotation link and the other end thereof fixed to the second arm portion, and

a second spring having one end thereof fixed to the movable member and the other end thereof fixed to the second arm portion;
and

wherein the energy storing mechanism is constructed in such manner that the energy storing link is rotated due to the force applied to the first arm portion when the movable member is relatively moved from the farther forward position to the closer forward position, thereby energizing the first and second springs, and the energy storing link is reversely rotated due to the energy released from the second spring while pressing of the movable member onto the article is being released, thereby moving the movable member from the closer forward position to the farther forward position.

[10] A barcode reader for a play toy, comprising:

a reader body,

a movable member formed with an opening for guiding light beams reflected from a barcode to a barcode sensor and movably held by the reader body so as to be relatively moved with respect to the reader body between a farther forward position and a closer forward position as viewed from the reader body, and

a barcode sensor moving mechanism for moving the barcode sensor within a movable range corresponding to the opening without using electrical power,

wherein the movable member is held by the reader body so as to be relatively moved with respect to the reader body from the farther forward position to the closer forward position while being pressed onto the article, and to be relatively moved with respect to the reader body from the closer forward position to the farther forward position when pressing of the movable member

onto the article is released; and

wherein the barcode sensor moving mechanism includes an energy storage means which is energized while the movable member is being pressed onto the article, and is arranged so as to move the barcode sensor from one end to the other end of the opening using energy released from the energy storage means.

[11] A barcode readable with a barcode reader for a play toy set forth in claim 10, comprising:

a first barcode pattern including information; and

a second barcode pattern including a reference barcode row constituted from a plurality of bars which have a constant width dimension and are disposed at constant intervals, and parallel with the first barcode pattern,

wherein each bar of the first barcode pattern is indicated, being aligned with the plurality of bars of the reference barcode row of the second barcode pattern.